AMENDMENT TO THE CLAIMS:

1-37. (Cancelled)

38. (New) A method for producing a coating for absorption of neutrons generated in nuclear reaction of radioactive materials on a shielding element at least partly, the method comprising:

providing a shielding element having a base material and appropriately predefined surfaces;

providing a dispersion bath comprising a substance having a high neutron capture cross-section and an electrolytically precipitable metallic substance wherein the substance having the high neutron capture cross section is in a form of an electrically conductive compound;

submerging said shielding element at least partly with appropriately predefined surfaces to be coated into said dispersion bath;

intermittently generating a relative movement between the respective surface to be coated and the dispersion bath during the coating process; and

removing the shielding element from said dispersion bath.

39. (New) The method as set forth in claim 38, wherein the electrolytically precipitable metallic substance is one element of the group that consists of nickel, cadmium and copper.

40. (New) The method as set forth in claim 38, wherein the substance with the high neutron capture cross-section is at least one of the elements of the group that consists of boron, gadolinium, cadmium, samarium, europium and dysprosium.

41. (New) The method as set forth in claim 40, wherein the substance having the high neutron capture cross-section is an isotope having an augmented neutron capture cross-section.

42. (New) The method as set forth in claim 38, wherein the electrically conductive compound of the element with the high neutron capture cross-section is a metallic compound.

43. (New) The method as set forth in claim 42, wherein the electrically conductive compound of the element with the high neutron capture cross-section is metal boride.

44. (New) The method as set forth in claim 38, wherein the relative movement is generated moving the surface to be coated.

45. (New) The method as set forth in claim 38, wherein the relative movement is generated by blowing in a gas and/or by introducing ultrasound waves.

46. (New) The method as set forth in claim 38, wherein the dispersion bath is thoroughly mixed at least periodically during the coating process.

47. (New) The method as set forth in claim 38, wherein the process is performed in a ceramic or glass vessel.

48. (New) A neutron absorption device, comprising:

an inorganic base material; and

a layer disposed at said inorganic base material, said layer being composed of a substance having a high neutron capture cross-section of more than 20% by volume being embedded in an electrolytically precipitable metallic substance.

49. (New) The neutron adsorption device of claim 48, wherein said substance having said high neutron capture cross-section is an electrically conductive compound.

50. (New) The neutron adsorption device of claim 49, wherein said electrically conductive compound is a metallic compound.

51. (New) The neutron adsorption device of claim 50, wherein the electrically conductive compound of the element with the high neutron capture cross-section is metal boride.

52. (New) The neutron adsorption device of claim 48, wherein said substance having said high neutron capture cross-section is an element selected from the group consisting of boron, gadolinium, cadmium, samarium, europlum, and dysprosium.

53. (New) The neutron adsorption device of claim 52, wherein said substance having said high neutron capture cross-section is an isotope having an augmented neutron capture cross-section.

54. (New) The neutron adsorption device of claim 48, wherein said electrolytically precipitable metallic substance is an element selected from the group consisting of nickel, cadmium, and copper.

55. (New) The neutron adsorption device of claim 48, wherein a thickness of said layer is up to 800 micrometers.

56. (New) The neutron adsorption device of claim 48, wherein said substance having said high neutron capture cross-section is embedded in a metal matrix.

57. (New) The neutron adsorption device of claim 56, wherein a concentration of said substance having said high neutron capture cross-section embedded in said metal matrix is up to about 60% by volume.

58. (New) The neutron adsorption device of claim 48, wherein said inorganic base material comprises a shielding element having a predefined surface.